POST CLOSURE ENVIRONMENTAL MONITORING REPORT
for
HOPKINTON LANDFILL PHASE II
STUBTOWN ROAD
HOPKINTON, RHODE ISLAND

Prepared For:

Town of Hopkinton

Prepared By:

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Robert L. Hoffman, P.E.
President

OCTOBER 2019

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1.0 INTRODUCTION

Hoffman Engineering, Inc. (HEI) is pleased to present the following summary of groundwater monitoring and surface water monitoring for the Post Closure Monitoring at the former Hopkinton Landfill site located at the end of Stubtown Road in Hopkinton, Rhode Island (the Site). A Site Locus Map is provided as Figure 1. This Site is commonly referred to as the Phase II Landfill which underwent capping circa 2000. This monitoring work was conducted in general accordance with the procedures for Post Closure Environmental Monitoring.

2.0 PREVIOUS MONITORING RESULTS

A monitoring round was last conducted, based on available file review information, in June of 2001. The results of this round and the previous round of available data have been incorporated into Table 1, attached.

During the previous groundwater monitoring round there four volatile organic compounds (VOCs). Acetone was detected in the samples from MW-5 and MW-7, chlorobenzene was detected in the sample from MW-7, chloroethane was detected in the sample from MW-7 and toluene was detected in the sample from MW-5. All detected VOCs were below the RI Department of Environment's GA Groundwater Quality Objective (GA Objective). Four inorganic analytes were also detected in groundwater samples. Barium and cadmium were detected in groundwater samples collected MW-5, MW-6 and MW-7, lead was detected in groundwater samples collected from MW-5 and MW-6 and zinc was detected in all samples collected from all four locations. Please note that both cadmium and lead exceeded the MCL in samples collected from MW-5 and MW-6. Cadmium also exceeded the MCL in the sample collected from MW-7. Inorganic results may be elevated due to the presence of sediments in the collected samples. Note, as discussed below, HEI conducted the current round of sampling employing the USEPA Low Stress Low Flow Protocols.

3.0 GROUNDWATER SAMPLING AND ANALYSIS

The current round of groundwater sampling involved the collection of groundwater samples from the four groundwater monitoring wells located around the Phase II landfill. These locations are depicted on Figure 2. All samples were analyzed for Appendix A parameters (detection monitoring), as specified in Rule 2.1.03 of the RIDEM regulations. Initially only 2 of the locations were found and as such two of the samples were collected on June 26, 2019, whereas the second 2 were collected on September 3, 2019.

4.0 SAMPLE COLLECTION METHODOLOGY

Static Water level readings were collected from each monitoring well prior to purging the monitoring well. The monitoring wells were purged using EPA's Low Stress Low Flow Protocol using a peristaltic pump. Dedicated tubing was utilized for each of the monitoring wells. This low flow procedure is designed to minimize the silt within the sample which can skew the metals results artificially high. The turbidity is monitored during the sampling, as well as other filed parameters, until the readings have stabilized and the turbidity is consistently low (e.g. 20 NTU).

Following stabilization, groundwater samples were collected for EPA Method 8260 Volatile Organic Compounds and 15 solid waste metals compound.

Samples were collected into laboratory prepared bottles, placed on ice and transported under a chain-of-custody to RI Analytical Laboratories, Inc. of Warwick, Rhode Island for analytical testing.

5.0 GROUNDWATER QUALITY MONITORING RESULTS

A copy of the Certificate of Analysis and chain-of-custody for the current monitoring round is provided in the Appendix.

Table 1 provides a summary of analytical results. A review of the table shows that a total of 4 target analytes were detected during this sampling round. One of the 7 was an inorganic analyte (lead) and three were VOCs (chlorobenzene, chloroethane and chloromethane). All of these results were below the RI Department of Environment's GA Groundwater Quality Objective.

6.0 SURFACE WATER QUALITY MONITORING RESULTS

On June 26, 2019 HEI collected two surface water samples from areas of apparent runoff of the Phase II Landfill. These two locations are shown on Figure 2. The areas of runoff were in storm water management trenches that were constructed during the capping of the landfill. These storm water trenches have silted from erosion due to runoff. The samples were placed in laboratory prepared bottles and analyzed for RIDEM Appendix A Landfill metals and VOCs as well as total suspended solids and total solids. The results, summarized in Table 2, indicate no exceedances of RIDEM Ambient Water Quality Criteria for Human Health based on consumption of water and or aquatic Organisms. The two VOCs detected, Acetone and Chloromethane are typical laboratory artifacts (i.e., Contaminants) and not indicative of sampling contaminants.

7.0 SUMMARY

This round of Post Closure Monitoring was conducted at the closed landfill in June and September 2019. The following summarizes the results of this monitoring:

1. The groundwater shows little or no impact from the subject landfill. Only slightly elevated level of metals and VOCs were detected in samples collected from onsite monitoring wells. Unlike the previously available round of sample data from 2001 all analytes were below the RIDEM GA groundwater quality objectives.

2. Based on the two surface water samples, there doesn't appear to be adverse impact from the surface water run-off. However, the sedimentation trenches are full of sand and silt and should be rejuvenated by removing this material with continued inspection on an annual basis with maintenance as needed.

FIGURES

Figure 1 – Site Locus Map

Figure 2 – Site Plan

HEI

HOFFMAN ENGINEERING, INC.
640 Ten Rod Rd.
North Kingstown, RI 02852

LOCUS MAP

HOPKINTON LANDFILL PHASE II

STUBTOWN ROAD
HOPKINTON, RHODE ISLAND

N

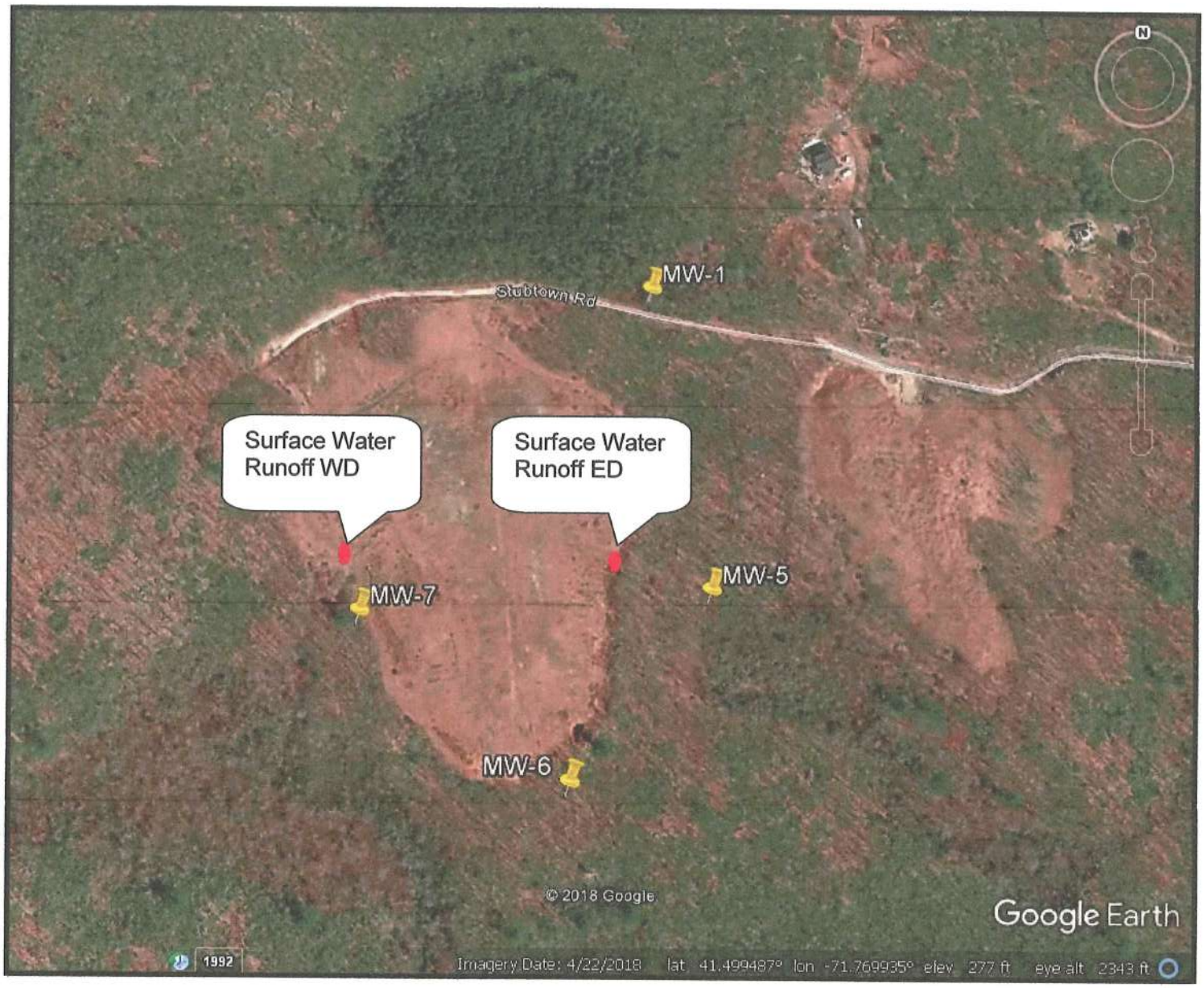
Date: 9-20-19

By: ALG

Base Map: USGS Map
Via ArcGis Database 2019

NTS

APPENDIX 1



HEI

HOFFMAN ENGINEERING, INC.
640 Ten Rod Rd.
North Kingstown, RI 02852

Site Plan
Phase II Landfill

Hopkinton Landfill
Stubtown Road
Hopkinton, Rhode Island

Date: 9-20-19

By: ALG

Base Map: Google Earth Image 2019

Figure 2

TABLES

Table 1 – Groundwater Analytical Results

Table 2 – Surface Water Analytical Results

TABLE 1
GROUNDWATER ANALYTICAL RESULTS HOPKINTON LANDFILL
POST CLOSURE

Sample Description	MW-1		MW-5		MW-6		MW-7		
Sample Date	6/19/2001	6/26/2019	6/19/2001	9/3/2019	6/19/2001	6/26/2019	6/19/2001	9/3/2019	
Parameter	Sample Results								Regulatory Limit (mg/l)
Volatile Organic Compounds (ug/l)									
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	5.000
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	NL
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	80.000
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	80.000
Bromomethane	<7	<7	<7	<7	1.2	<7	<5	<5	NL
Carbon Tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	5.000
Chlorobenzene	<1	<1	<1	<1	<1	<1	2.4	2.1	100.000
Chloroethane	<5	<5	<5	<5	<5	<5	7.7	3.4	NL
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	80.000
Chloromethane	<5	10.5	<5	<5	<5	5.2	<5	<5	NL
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	80.000
1,2-Dibromo-3-Chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	0.200
1,2-Dibromoethane(EDB)	<1	<1	<1	<1	<1	<1	<1	<1	0.050
Dibromomethane	<2	<2	<2	<2	<2	<2	<2	<2	NL
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	600.000
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	75.000
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	NL
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	5.000
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	7.000
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	70.000
trans-1,2-Dichloroethylene	<1	<1	<1	<1	<1	<1	<2	<2	100.000
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	5.000
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	700.000
Methylene Chloride	<5	<5	<5	<5	<5	<5	<5	<5	5.000
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	100.000
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	NL
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	NL
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1	5.000
Toluene	<1	<1	3.3	<1	<1	<1	<1	<1	1000.000
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	200.000
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	5.000
Trichloroethene	<1	<1	<1	<1	1	<1	<1	<1	5.000
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	NL
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<2	<2	NL
Vinyl Chloride	<1	<1	<1	<1	<1	<1	<1	<1	2.000
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	1000.000
m,p-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	1000.000
Carbon Disulfide	<5	<5	<5	<5	<5	<5	<5	<5	NL
Iodomethane	<10	<10	<10	<10	<10	<10	<10	<10	NL
Acetone	<10	<10	15	<10	<10	<10	7.2	<10	NL
Acrylonitrile	<10	<10	<10	<10	<10	<10	<10	<10	NL
2-Butanone(MEK)	<10	<10	<10	<10	<10	<10	<10	<10	NL
4-Methyl-2-pentanone(MIBK)	<50	<50	<50	<10	<50	<10	<10	<10	NL
2-Hexanone	<10	<10	<10	<10	<10	<10	<10	<10	NL
trans-1,4-Dichloro-2-butene	<10	<10	<10	<10	<10	<10	<10	<10	NL
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	NL
trans-1,3-Dichloropropylene	<1	<1	<1	<1	<1	<1	<1	<1	NL
Vinyl Acetate	<50	<50	<50	<50	<50	<50	<50	<50	NL
Total Metals (mg/l)									
Antimony	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.006
Arsenic	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.050
Cadmium	<0.0002	<0.0002	0.013	<0.0002	0.0033	<0.0002	0.016	<0.0002	0.005
Lead	<0.001	<0.001	0.035	<0.001	0.15	0.011	<0.001	<0.001	0.015 *
Selenium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.050
Thallium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Barium	<0.05	<0.05	0.043	<0.05	0.024	<0.05	0.2	<0.05	2.000
Beryllium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
Chromium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.100
Cobalt	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NL
Copper	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NL
Nickel	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NL
Silver	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	NL
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NL
Zinc	0.046	<0.10	0.077	<0.10	0.018	<0.10	0.044	<0.10	NL

NL = No Regulatory Limit
Regulatory Limit refers to the USEPA Maximum Contaminant Level.
* Indicates the Regulatory Limit is a limit based on treatment technique (TT).
Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

TABLE 2
SURFACE WATER ANALYTICAL RESULTS HOPKINTON LANDFILL
POST CLOSURE

Sample Description	Surface Water Runoff ED		Surface Water Runoff WD		
Sample Date	6/26/2019		6/26/2019		
Parameter	Sample Results	Reporting Limits	Sample Results	Reporting Limits	Ambient Surface Water Quality Criteria (mg/l)
Volatile Organic Compounds (ug/l)					
Benzene	ND	<1	ND	<1	22.000
Bromochloromethane	ND	<1	ND	<1	NL
Bromodichloromethane	ND	<1	ND	<1	NL
Bromoform	ND	<1	ND	<1	NL
Bromomethane	ND	<1	ND	<1	NL
Carbon Tetrachloride	ND	<1	ND	<1	2.300
Chlorobenzene	ND	<1	ND	<1	130.000
Chloroethane	ND	<1	ND	<1	NL
Chloroform	ND	<1	ND	<1	57.000
Chloromethane	2.9	<1	2.5	<1	NL
Dibromochloromethane	ND	<1	ND	<1	NL
1,2-Dibromo-3-Chloropropane	ND	<1	ND	<1	NL
1,2-Dibromoethane(EDB)	ND	<1	ND	<1	NL
Dibromomethane	ND	<1	ND	<1	NL
1,2-Dichlorobenzene	ND	<1	ND	<1	420.000
1,4-Dichlorobenzene	ND	<1	ND	<1	63.000
1,1-Dichloroethane	ND	<1	ND	<1	NL
1,2-Dichloroethane	ND	<1	ND	<1	NL
1,1-Dichloroethene	ND	<1	ND	<1	330.000
cis-1,2-Dichloroethene	ND	<1	ND	<1	NL
trans-1,2-Dichloroethylene	ND	<1	ND	<1	NL
1,2-Dichloropropane	ND	<1	ND	<1	5.000
Ethylbenzene	ND	<1	ND	<1	530.000
Methylene Chloride	ND	<1	ND	<1	NL
Styrene	ND	<1	ND	<1	NL
1,1,1,2-Tetrachloroethane	ND	<1	ND	<1	NL
1,1,2,2-Tetrachloroethane	ND	<1	ND	<1	NL
Tetrachloroethene	ND	<1	ND	<1	6.900
Toluene	ND	<1	ND	<1	1300.000
1,1,1-Trichloroethane	ND	<1	ND	<1	NL
1,1,2-Trichloroethane	ND	<1	ND	<1	5.900
Trichloroethene	ND	<1	ND	<1	25.000
Trichlorofluoromethane	ND	<1	ND	<1	NL
1,2,3-Trichloropropane	ND	<1	ND	<1	NL
Vinyl Chloride	ND	<1	ND	<1	0.025
o-Xylene	ND	<1	ND	<1	NL
m,p-Xylene	ND	<2	ND	<2	NL
Carbon Disulfide	ND	<1	ND	<1	NL
Iodomethane	ND	<1	ND	<1	NL
Acetone	ND	<5	6.6	<5	NL
Acrylonitrile	ND	<1	ND	<1	0.510
2-Butanone(MEK)	ND	<5	ND	<5	NL
4-Methyl-2-pentanone(MIBK)	ND	<5	ND	<5	NL
2-Hexanone	ND	<5	ND	<5	NL
trans-1,4-Dichloro-2-butene	ND	<1	ND	<1	NL
cis-1,3-Dichloropropene	ND	<1	ND	<1	NL
trans-1,3-Dichloropropylene	ND	<1	ND	<1	NL
Vinyl Acetate	ND	<1	ND	<1	NL
Total Metals (mg/l)					
Antimony	ND	<0.002	ND	<0.002	0.006
Arsenic	ND	<0.001	ND	<0.001	0.0002
Cadmium	ND	<0.0002	ND	<0.0002	NL
Lead	ND	<0.001	ND	<0.001	NL
Selenium	ND	<0.002	ND	<0.002	0.170
Thallium	ND	<0.001	ND	<0.001	0.000
Barium	ND	<0.05	ND	<0.05	NL
Beryllium	ND	<0.001	ND	<0.001	NL
Chromium	ND	<0.005	ND	<0.005	NL
Cobalt	ND	<0.010	ND	<0.010	NL
Copper	ND	<0.010	ND	<0.010	1.300
Nickel	ND	<0.010	ND	<0.010	0.610
Silver	ND	<0.020	ND	<0.020	NL
Vanadium	ND	<0.005	ND	<0.005	NL
Zinc	ND	<0.10	ND	<0.10	7.400
Total Suspended Solids	15	2	25	2	NL
Total Solids	76	10	140	10	NL

NL = No Regulatory Limit
Regulatory Limit refers to RIDEM Ambient Water Quality Criteria (Human Health Criteria).
Assume Hardness of 25 mg/L

TABLE 2
SURFACE WATER ANALYTICAL RESULTS HOPKINTON LANDFILL
POST CLOSURE

Sample Description	Surface Water Runoff ED		Surface Water Runoff WD		
Sample Date	6/26/2019		6/26/2019		
Parameter	Sample Results	Reporting Limits	Sample Results	Reporting Limits	Ambient Surface Water Quality Criteria (mg/l)
Volatile Organic Compounds (ug/l)					
Benzene	ND	<1	ND	<1	22.000
Bromochloromethane	ND	<1	ND	<1	NL
Bromodichloromethane	ND	<1	ND	<1	NL
Bromoform	ND	<1	ND	<1	NL
Bromomethane	ND	<1	ND	<1	NL
Carbon Tetrachloride	ND	<1	ND	<1	2.300
Chlorobenzene	ND	<1	ND	<1	130.000
Chloroethane	ND	<1	ND	<1	NL
Chloroform	ND	<1	ND	<1	57.000
Chloromethane	2.9	<1	2.5	<1	NL
Dibromochloromethane	ND	<1	ND	<1	NL
1,2-Dibromo-3-Chloropropane	ND	<1	ND	<1	NL
1,2-Dibromoethane(EDB)	ND	<1	ND	<1	NL
Dibromomethane	ND	<1	ND	<1	NL
1,2-Dichlorobenzene	ND	<1	ND	<1	420.000
1,4-Dichlorobenzene	ND	<1	ND	<1	63.000
1,1-Dichloroethane	ND	<1	ND	<1	NL
1,2-Dichloroethane	ND	<1	ND	<1	NL
1,1-Dichloroethene	ND	<1	ND	<1	330.000
cis-1,2-Dichloroethene	ND	<1	ND	<1	NL
trans-1,2-Dichloroethylene	ND	<1	ND	<1	NL
1,2-Dichloropropane	ND	<1	ND	<1	5.000
Ethylbenzene	ND	<1	ND	<1	530.000
Methylene Chloride	ND	<1	ND	<1	NL
Styrene	ND	<1	ND	<1	NL
1,1,1,2-Tetrachloroethane	ND	<1	ND	<1	NL
1,1,2,2-Tetrachloroethane	ND	<1	ND	<1	NL
Tetrachloroethene	ND	<1	ND	<1	6.900
Toluene	ND	<1	ND	<1	1300.000
1,1,1-Trichloroethane	ND	<1	ND	<1	NL
1,1,2-Trichloroethane	ND	<1	ND	<1	5.900
Trichloroethene	ND	<1	ND	<1	25.000
Trichlorofluoromethane	ND	<1	ND	<1	NL
1,2,3-Trichloropropane	ND	<1	ND	<1	NL
Vinyl Chloride	ND	<1	ND	<1	0.025
o-Xylene	ND	<1	ND	<1	NL
m,p-Xylene	ND	<2	ND	<2	NL
Carbon Disulfide	ND	<1	ND	<1	NL
Iodomethane	ND	<1	ND	<1	NL
Acetone	ND	<5	6.6	<5	NL
Acrylonitrile	ND	<1	ND	<1	0.510
2-Butanone(MEK)	ND	<5	ND	<5	NL
4-Methyl-2-pentanone(MIBK)	ND	<5	ND	<5	NL
2-Hexanone	ND	<5	ND	<5	NL
trans-1,4-Dichloro-2-butene	ND	<1	ND	<1	NL
cis-1,3-Dichloropropene	ND	<1	ND	<1	NL
trans-1,3-Dichloropropylene	ND	<1	ND	<1	NL
Vinyl Acetate	ND	<1	ND	<1	NL
Total Metals (mg/l)					
Antimony	ND	<0.002	ND	<0.002	0.006
Arsenic	ND	<0.001	ND	<0.001	0.0002
Cadmium	ND	<0.0002	ND	<0.0002	NL
Lead	ND	<0.001	ND	<0.001	NL
Selenium	ND	<0.002	ND	<0.002	0.170
Thallium	ND	<0.001	ND	<0.001	0.000
Barium	ND	<0.05	ND	<0.05	NL
Beryllium	ND	<0.001	ND	<0.001	NL
Chromium	ND	<0.005	ND	<0.005	NL
Cobalt	ND	<0.010	ND	<0.010	NL
Copper	ND	<0.010	ND	<0.010	1.300
Nickel	ND	<0.010	ND	<0.010	0.610
Silver	ND	<0.020	ND	<0.020	NL
Vanadium	ND	<0.005	ND	<0.005	NL
Zinc	ND	<0.10	ND	<0.10	7.400
Total Suspended Solids	15	2	25	2	NL
Total Solids	76	10	140	10	NL

NL = No Regulatory Limit
Regulatory Limit refers to RIDEM Ambient Water Quality Criteria (Human Health Criteria).
Assume Hardness of 25 mg/L

APPENDIX

Certificates of Analyses

R.I. ANALYTICAL
Specialists in Environmental Services

LABORATORY REPORT

Hoffman Engineering, Inc.
Attn: Robert Hoffman
640 Ten Rod Road
North Kingstown, RI 02852

Date Received: 6/28/2019
Date Reported: 7/25/2019
P.O. Number

Work Order #: 1906-12088

Project Name: PHASE II HOPKINTON LANDFILL

Enclosed are the analytical results and Chain of Custody for your project referenced above. The sample(s) were analyzed by our Warwick, RI laboratory unless noted otherwise. When applicable, indication of sample analysis at our Hudson, MA laboratory and/or subcontracted results are noted and subcontracted reports are enclosed in their entirety.

All samples were analyzed within the established guidelines of US EPA approved methods with all requirements met, unless otherwise noted at the end of a given sample's analytical results or in a case narrative.

The Detection Limit is defined as the lowest level that can be reliably achieved during routine laboratory conditions.

These results only pertain to the samples submitted for this Work Order # and this report shall not be reproduced except in its entirety.

We certify that the following results are true and accurate to the best of our knowledge. If you have questions or need further assistance, please contact our Customer Service Department.

Approved by:

Dawne E. Smart
Data Reporting Manager

Laboratory Certification Numbers (as applicable to sample's origin state):
Warwick RI * RI LAI00033, MA M-RI015, CT PH-0508 Hudson MA * M-MA1117, RI LAO00319

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1906-12088

Project Name: PHASE II HOPKINTON LANDFILL

Sample Number: 001
Sample Description: MW-1
Sample Type : GRAB
Sample Date / Time : 6/26/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Total Metals							
Antimony	<0.002	0.002	mg/l	SW-846 6020A	7/5/2019	18:58	AJD
Arsenic	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	18:58	AJD
Cadmium	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	18:58	AJD
Lead	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	18:58	AJD
Selenium	<0.002	0.002	mg/l	SW-846 6020A	7/5/2019	18:58	AJD
Thallium	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	18:58	AJD
Total Metals							
Barium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:29	DDP
Beryllium	<0.005	0.005	mg/l	SW-846 6010C	7/3/2019	16:29	DDP
Chromium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:29	DDP
Cobalt	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:29	DDP
Copper	<0.010	0.010	mg/l	SW-846 6010C	7/3/2019	16:29	DDP
Nickel	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:29	DDP
Silver	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:29	DDP
Vanadium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:29	DDP
Zinc	<0.10	0.10	mg/l	SW-846 6010C	7/3/2019	16:29	DDP
ICPMS Digestion (Total)				SW-846 3020A	7/5/2019	13:07	MEM
ICP Digestion				SW-846 3010A	7/3/2019	14:50	MEM
Volatile Organic Compounds	See Attached			SW-846 8260C	7/8/2019	17:26	*PA

*PA VOC's analyzed by Pace Analytical Services.

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1906-12088

Project Name: PHASE II HOPKINTON LANDFILL

Sample Number: 002
Sample Description: MW-6
Sample Type : GRAB
Sample Date / Time : 6/26/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Total Metals							
Antimony	<0.002	0.002	mg/l	SW-846 6020A	7/5/2019	19:02	AJD
Arsenic	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:02	AJD
Cadmium	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:02	AJD
Lead	0.011	0.001	mg/l	SW-846 6020A	7/5/2019	19:02	AJD
Selenium	<0.002	0.002	mg/l	SW-846 6020A	7/5/2019	19:02	AJD
Thallium	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:02	AJD
Total Metals							
Barium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:30	DDP
Beryllium	<0.005	0.005	mg/l	SW-846 6010C	7/3/2019	16:30	DDP
Chromium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:30	DDP
Cobalt	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:30	DDP
Copper	<0.010	0.010	mg/l	SW-846 6010C	7/3/2019	16:30	DDP
Nickel	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:30	DDP
Silver	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:30	DDP
Vanadium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:30	DDP
Zinc	<0.10	0.10	mg/l	SW-846 6010C	7/3/2019	16:30	DDP
ICPMS Digestion (Total)				SW-846 3020A	7/5/2019	13:07	MEM
ICP Digestion				SW-846 3010A	7/3/2019	14:50	MEM
Volatile Organic Compounds	See Attached			SW-846 8260C	7/8/2019	17:46	*PA

*PA VOC's analyzed by Pace Analytical Services.

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1906-12088

Project Name: PHASE II HOPKINTON LANDFILL

Sample Number: 003
Sample Description: SURFACE RUNOFF ED
Sample Type : GRAB
Sample Date / Time : 6/26/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Volatile Organic Compounds	See Attached			SW-846 8260C	7/8/2019	18:05	*PA
Total Suspended Solids	15	2.0	mg/l	SM2540D 2011	7/2/2019	21:18	DD
Total Solids	76	10	mg/l	SM2540B 18-21ed	7/2/2019	21:22	SNI
Total Metals							
Antimony	<0.002	0.002	mg/l	SW-846 6020A	7/5/2019	19:05	AJD
Arsenic	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:05	AJD
Cadmium	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:05	AJD
Lead	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:05	AJD
Selenium	<0.002	0.002	mg/l	SW-846 6020A	7/5/2019	19:05	AJD
Thallium	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:05	AJD
Total Metals							
Barium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:32	DDP
Beryllium	<0.005	0.005	mg/l	SW-846 6010C	7/3/2019	16:32	DDP
Chromium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:32	DDP
Cobalt	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:32	DDP
Copper	<0.010	0.010	mg/l	SW-846 6010C	7/3/2019	16:32	DDP
Nickel	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:32	DDP
Silver	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:32	DDP
Vanadium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:32	DDP
Zinc	<0.10	0.10	mg/l	SW-846 6010C	7/3/2019	16:32	DDP
ICPMS Digestion (Total)				SW-846 3020A	7/5/2019	13:07	MEM
ICP Digestion				SW-846 3010A	7/3/2019	14:50	MEM

*PA VOC's analyzed by Pace Analytical Services.

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1906-12088

Project Name: PHASE II HOPKINTON LANDFILL

Sample Number: 004
Sample Description: SURFACE RUNOFF WD
Sample Type : GRAB
Sample Date / Time : 6/26/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Volatile Organic Compounds	See Attached			SW-846 8260C	7/8/2019	18:28	*PA
Total Suspended Solids	25	2.0	mg/l	SM2540D 2011	7/2/2019	21:18	DD
Total Solids	140	10	mg/l	SM2540B 18-21ed	7/2/2019	21:22	SNI
Total Metals							
Antimony	<0.002	0.002	mg/l	SW-846 6020A	7/5/2019	19:13	AJD
Arsenic	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:13	AJD
Cadmium	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:13	AJD
Lead	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:13	AJD
Selenium	<0.002	0.002	mg/l	SW-846 6020A	7/5/2019	19:13	AJD
Thallium	<0.001	0.001	mg/l	SW-846 6020A	7/5/2019	19:13	AJD
Total Metals							
Barium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:34	DDP
Beryllium	<0.005	0.005	mg/l	SW-846 6010C	7/3/2019	16:34	DDP
Chromium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:34	DDP
Cobalt	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:34	DDP
Copper	<0.010	0.010	mg/l	SW-846 6010C	7/3/2019	16:34	DDP
Nickel	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:34	DDP
Silver	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:34	DDP
Vanadium	<0.050	0.050	mg/l	SW-846 6010C	7/3/2019	16:34	DDP
Zinc	<0.10	0.10	mg/l	SW-846 6010C	7/3/2019	16:34	DDP
ICPMS Digestion (Total)				SW-846 3020A	7/5/2019	13:07	MEM
ICP Digestion				SW-846 3010A	7/3/2019	14:50	MEM

*PA VOC's analyzed by Pace Analytical Services.

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1906-12088

Project Name: PHASE II HOPKINTON LANDFILL

Quality Control Sample Report

-Method Blanks-

Parameter	Units	Results	Date Analyzed
Total Suspended Solids	mg/l	<2.0	7/2/2019
Total Solids	mg/l	<10	7/2/2019
Metals			
Barium	mg/l	<0.050	7/3/2019
Beryllium	mg/l	<0.005	7/3/2019
Chromium	mg/l	<0.050	7/3/2019
Cobalt	mg/l	<0.050	7/3/2019
Copper	mg/l	<0.010	7/3/2019
Nickel	mg/l	<0.050	7/3/2019
Silver	mg/l	<0.050	7/3/2019
Vanadium	mg/l	<0.050	7/3/2019
Zinc	mg/l	<0.10	7/3/2019
Metals by ICP MassSpec			
Antimony	mg/l	<0.002	7/5/2019
Arsenic	mg/l	<0.001	7/5/2019
Cadmium	mg/l	<0.001	7/5/2019
Lead	mg/l	<0.001	7/5/2019
Selenium	mg/l	<0.002	7/5/2019
Thallium	mg/l	<0.001	7/5/2019

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1906-12088

Project Name: PHASE II HOPKINTON LANDFILL

-Laboratory Control Standard-

Parameter	Units	Spike Conc.	Detected Conc.	% Rec.	Date Analyzed
Total Suspended Solids	mg/l	100	100	100	7/2/2019
Total Suspended Solids	mg/l	100	110	110	7/2/2019
Total Suspended Solids	mg/l	100	100	100	7/2/2019
Total Solids	mg/l	1100	1100	100	7/2/2019
Total Solids	mg/l	1100	1100	100	7/2/2019
Total Solids	mg/l	1100	1100	100	7/2/2019
Metals					
Barium	mg/l	1.00	1.00	100	7/3/2019
Beryllium	mg/l	1.00	1.07	107	7/3/2019
Chromium	mg/l	1.00	1.05	105	7/3/2019
Cobalt	mg/l	1.00	1.00	100	7/3/2019
Copper	mg/l	1.00	1.03	103	7/3/2019
Nickel	mg/l	1.00	0.994	99	7/3/2019
Silver	mg/l	1.00	0.994	99	7/3/2019
Vanadium	mg/l	1.00	1.09	109	7/3/2019
Zinc	mg/l	1.00	0.982	98	7/3/2019
Barium	mg/l	1.00	0.991	99	7/3/2019
Beryllium	mg/l	1.00	1.05	105	7/3/2019
Chromium	mg/l	1.00	1.02	102	7/3/2019
Cobalt	mg/l	1.00	0.981	98	7/3/2019
Copper	mg/l	1.00	1.01	101	7/3/2019
Nickel	mg/l	1.00	0.965	97	7/3/2019
Silver	mg/l	1.00	0.979	98	7/3/2019
Vanadium	mg/l	1.00	1.06	106	7/3/2019
Zinc	mg/l	1.00	0.964	96	7/3/2019
Metals by ICP MassSpec					
Antimony	mg/l	0.050	0.053	106	7/5/2019
Arsenic	mg/l	0.050	0.049	98	7/5/2019
Cadmium	mg/l	0.050	0.049	98	7/5/2019
Lead	mg/l	0.050	0.052	104	7/5/2019
Selenium	mg/l	0.050	0.049	98	7/5/2019
Thallium	mg/l	0.050	0.050	100	7/5/2019
Antimony	mg/l	0.050	0.053	106	7/5/2019
Arsenic	mg/l	0.050	0.049	98	7/5/2019
Cadmium	mg/l	0.050	0.049	98	7/5/2019
Lead	mg/l	0.050	0.051	102	7/5/2019
Selenium	mg/l	0.050	0.049	98	7/5/2019
Thallium	mg/l	0.050	0.050	100	7/5/2019

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

July 11, 2019

Data Reporting
R.I. Analytical Laboratories
41 Illinois Avenue
Warwick, RI 02888

RE: Project: 1906-12088
Pace Project No.: 7096019

Dear Data Reporting:
Enclosed are the analytical results for sample(s) received by the laboratory on July 02, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sophia Sparkes

Sophia Sparkes
sophia.sparkes@pacelabs.com
(631)694-3040
Project Manager

Enclosures

cc: Kristen Phelan, R.I. Analytical Laboratories
Dawne Smart, R.I. Analytical

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CERTIFICATIONS

Project: 1906-12088
Pace Project No.: 7096019

Long Island Certification IDs

575 Broad Hollow Rd, Melville, NY 11747
New York Certification #: 10478 Primary Accrediting Body
New Jersey Certification #: NY158
Pennsylvania Certification #: 68-00350
Connecticut Certification #: PH-0435
Maryland Certification #: 208
Rhode Island Certification #: LAO00340
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

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ANALYTICAL RESULTS

Project: 1906-12088
Pace Project No.: 7096019

Sample: 1906-12088-001 **Lab ID: 7096019001** Collected: 06/26/19 00:00 Received: 07/02/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		07/08/19 17:26	67-64-1	IC
Acrylonitrile	**<1.0**	ug/L	1.0	1		07/08/19 17:26	107-13-1	
Benzene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	71-43-2	
Bromochloromethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	74-97-5	
Bromodichloromethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	75-27-4	
Bromoform	**<1.0**	ug/L	1.0	1		07/08/19 17:26	75-25-2	
Bromomethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	74-83-9	
2-Butanone (MEK)	**<5.0**	ug/L	5.0	1		07/08/19 17:26	78-93-3	IL
Carbon disulfide	**<1.0**	ug/L	1.0	1		07/08/19 17:26	75-15-0	
Carbon tetrachloride	**<1.0**	ug/L	1.0	1		07/08/19 17:26	56-23-5	
Chlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	75-00-3	
Chloroform	**<1.0**	ug/L	1.0	1		07/08/19 17:26	67-66-3	
Chloromethane	**10.5**	ug/L	1.0	1		07/08/19 17:26	74-87-3	
1,2-Dibromo-3-chloropropane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	96-12-8	
Dibromochloromethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	124-48-1	
1,2-Dibromoethane (EDB)	**<1.0**	ug/L	1.0	1		07/08/19 17:26	106-93-4	
Dibromomethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	74-95-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	95-50-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	106-46-7	
trans-1,4-Dichloro-2-butene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	110-57-6	
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	156-60-5	
1,2-Dichloropropane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	78-87-5	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	100-41-4	
2-Hexanone	**<5.0**	ug/L	5.0	1		07/08/19 17:26	591-78-6	
Iodomethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	74-88-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		07/08/19 17:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<5.0**	ug/L	5.0	1		07/08/19 17:26	108-10-1	
Styrene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	79-34-5	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	79-01-6	
Trichlorofluoromethane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	75-69-4	
1,2,3-Trichloropropane	**<1.0**	ug/L	1.0	1		07/08/19 17:26	96-18-4	
Vinyl acetate	**<1.0**	ug/L	1.0	1		07/08/19 17:26	108-05-4	
Vinyl chloride	**<1.0**	ug/L	1.0	1		07/08/19 17:26	75-01-4	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/19 17:26	179601-23-1	

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Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: 1906-12088
Pace Project No.: 7096019

Sample: 1906-12088-001 **Lab ID: 7096019001** Collected: 06/26/19 00:00 Received: 07/02/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/19 17:26	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	68-153	1		07/08/19 17:26	17060-07-0	
4-Bromofluorobenzene (S)	98	%	79-124	1		07/08/19 17:26	460-00-4	
Toluene-d8 (S)	97	%	69-124	1		07/08/19 17:26	2037-26-5	

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ANALYTICAL RESULTS

Project: 1906-12088
Pace Project No.: 7096019

Sample: 1906-12088-002 **Lab ID: 7096019002** Collected: 06/26/19 00:00 Received: 07/02/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		07/08/19 17:46	67-64-1	IC
Acrylonitrile	**<1.0**	ug/L	1.0	1		07/08/19 17:46	107-13-1	
Benzene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	71-43-2	
Bromochloromethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	74-97-5	
Bromodichloromethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	75-27-4	
Bromoform	**<1.0**	ug/L	1.0	1		07/08/19 17:46	75-25-2	
Bromomethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	74-83-9	
2-Butanone (MEK)	**<5.0**	ug/L	5.0	1		07/08/19 17:46	78-93-3	IL
Carbon disulfide	**<1.0**	ug/L	1.0	1		07/08/19 17:46	75-15-0	
Carbon tetrachloride	**<1.0**	ug/L	1.0	1		07/08/19 17:46	56-23-5	
Chlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	75-00-3	
Chloroform	**<1.0**	ug/L	1.0	1		07/08/19 17:46	67-66-3	
Chloromethane	**5.2**	ug/L	1.0	1		07/08/19 17:46	74-87-3	D6
1,2-Dibromo-3-chloropropane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	96-12-8	
Dibromochloromethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	124-48-1	
1,2-Dibromoethane (EDB)	**<1.0**	ug/L	1.0	1		07/08/19 17:46	106-93-4	
Dibromomethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	74-95-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	95-50-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	106-46-7	
trans-1,4-Dichloro-2-butene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	110-57-6	
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	156-60-5	
1,2-Dichloropropane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	78-87-5	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	100-41-4	
2-Hexanone	**<5.0**	ug/L	5.0	1		07/08/19 17:46	591-78-6	
Iodomethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	74-88-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		07/08/19 17:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<5.0**	ug/L	5.0	1		07/08/19 17:46	108-10-1	
Styrene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	79-34-5	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	79-01-6	
Trichlorofluoromethane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	75-69-4	
1,2,3-Trichloropropane	**<1.0**	ug/L	1.0	1		07/08/19 17:46	96-18-4	
Vinyl acetate	**<1.0**	ug/L	1.0	1		07/08/19 17:46	108-05-4	
Vinyl chloride	**<1.0**	ug/L	1.0	1		07/08/19 17:46	75-01-4	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/19 17:46	179601-23-1	

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ANALYTICAL RESULTS

Project: 1906-12088
Pace Project No.: 7096019

Sample: 1906-12088-002 **Lab ID: 7096019002** Collected: 06/26/19 00:00 Received: 07/02/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/19 17:46	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	68-153	1		07/08/19 17:46	17060-07-0	
4-Bromofluorobenzene (S)	105	%	79-124	1		07/08/19 17:46	460-00-4	
Toluene-d8 (S)	98	%	69-124	1		07/08/19 17:46	2037-26-5	

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ANALYTICAL RESULTS

Project: 1906-12088
Pace Project No.: 7096019

Sample: 1906-12088-003 **Lab ID: 7096019003** Collected: 06/26/19 00:00 Received: 07/02/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		07/08/19 18:05	67-64-1	IC
Acrylonitrile	**<1.0**	ug/L	1.0	1		07/08/19 18:05	107-13-1	
Benzene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	71-43-2	
Bromochloromethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	74-97-5	
Bromodichloromethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	75-27-4	
Bromoform	**<1.0**	ug/L	1.0	1		07/08/19 18:05	75-25-2	
Bromomethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	74-83-9	
2-Butanone (MEK)	**<5.0**	ug/L	5.0	1		07/08/19 18:05	78-93-3	IL
Carbon disulfide	**<1.0**	ug/L	1.0	1		07/08/19 18:05	75-15-0	
Carbon tetrachloride	**<1.0**	ug/L	1.0	1		07/08/19 18:05	56-23-5	
Chlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	75-00-3	
Chloroform	**<1.0**	ug/L	1.0	1		07/08/19 18:05	67-66-3	
Chloromethane	**2.9**	ug/L	1.0	1		07/08/19 18:05	74-87-3	
1,2-Dibromo-3-chloropropane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	96-12-8	
Dibromochloromethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	124-48-1	
1,2-Dibromoethane (EDB)	**<1.0**	ug/L	1.0	1		07/08/19 18:05	106-93-4	
Dibromomethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	74-95-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	95-50-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	106-46-7	
trans-1,4-Dichloro-2-butene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	110-57-6	
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	156-60-5	
1,2-Dichloropropane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	78-87-5	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	100-41-4	
2-Hexanone	**<5.0**	ug/L	5.0	1		07/08/19 18:05	591-78-6	
Iodomethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	74-88-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		07/08/19 18:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<5.0**	ug/L	5.0	1		07/08/19 18:05	108-10-1	
Styrene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	79-34-5	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	79-01-6	
Trichlorofluoromethane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	75-69-4	
1,2,3-Trichloropropane	**<1.0**	ug/L	1.0	1		07/08/19 18:05	96-18-4	
Vinyl acetate	**<1.0**	ug/L	1.0	1		07/08/19 18:05	108-05-4	
Vinyl chloride	**<1.0**	ug/L	1.0	1		07/08/19 18:05	75-01-4	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/19 18:05	179601-23-1	

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ANALYTICAL RESULTS

Project: 1906-12088
Pace Project No.: 7096019

Sample: 1906-12088-003 **Lab ID: 7096019003** Collected: 06/26/19 00:00 Received: 07/02/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/19 18:05	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	107	%	68-153	1		07/08/19 18:05	17060-07-0	
4-Bromofluorobenzene (S)	98	%	79-124	1		07/08/19 18:05	460-00-4	
Toluene-d8 (S)	98	%	69-124	1		07/08/19 18:05	2037-26-5	

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ANALYTICAL RESULTS

Project: 1906-12088
Pace Project No.: 7096019

Sample: 1906-12088-004 **Lab ID: 7096019004** Collected: 06/26/19 00:00 Received: 07/02/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**6.6**	ug/L	5.0	1		07/08/19 18:28	67-64-1	IC
Acrylonitrile	**<1.0**	ug/L	1.0	1		07/08/19 18:28	107-13-1	
Benzene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	71-43-2	
Bromochloromethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	74-97-5	
Bromodichloromethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	75-27-4	
Bromoform	**<1.0**	ug/L	1.0	1		07/08/19 18:28	75-25-2	
Bromomethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	74-83-9	
2-Butanone (MEK)	**<5.0**	ug/L	5.0	1		07/08/19 18:28	78-93-3	IL
Carbon disulfide	**<1.0**	ug/L	1.0	1		07/08/19 18:28	75-15-0	
Carbon tetrachloride	**<1.0**	ug/L	1.0	1		07/08/19 18:28	56-23-5	
Chlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	75-00-3	
Chloroform	**<1.0**	ug/L	1.0	1		07/08/19 18:28	67-66-3	
Chloromethane	**2.5**	ug/L	1.0	1		07/08/19 18:28	74-87-3	
1,2-Dibromo-3-chloropropane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	96-12-8	
Dibromochloromethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	124-48-1	
1,2-Dibromoethane (EDB)	**<1.0**	ug/L	1.0	1		07/08/19 18:28	106-93-4	
Dibromomethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	74-95-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	95-50-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	106-46-7	
trans-1,4-Dichloro-2-butene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	110-57-6	
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	156-60-5	
1,2-Dichloropropane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	78-87-5	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	100-41-4	
2-Hexanone	**<5.0**	ug/L	5.0	1		07/08/19 18:28	591-78-6	
Iodomethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	74-88-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		07/08/19 18:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<5.0**	ug/L	5.0	1		07/08/19 18:28	108-10-1	
Styrene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	79-34-5	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	79-01-6	
Trichlorofluoromethane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	75-69-4	
1,2,3-Trichloropropane	**<1.0**	ug/L	1.0	1		07/08/19 18:28	96-18-4	
Vinyl acetate	**<1.0**	ug/L	1.0	1		07/08/19 18:28	108-05-4	
Vinyl chloride	**<1.0**	ug/L	1.0	1		07/08/19 18:28	75-01-4	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/19 18:28	179601-23-1	

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ANALYTICAL RESULTS

Project: 1906-12088
Pace Project No.: 7096019

Sample: 1906-12088-004 **Lab ID: 7096019004** Collected: 06/26/19 00:00 Received: 07/02/19 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/19 18:28	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%	68-153	1		07/08/19 18:28	17060-07-0	
4-Bromofluorobenzene (S)	99	%	79-124	1		07/08/19 18:28	460-00-4	
Toluene-d8 (S)	98	%	69-124	1		07/08/19 18:28	2037-26-5	

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QUALITY CONTROL DATA

Project: 1906-12088
Pace Project No.: 7096019

QC Batch: 120861 Analysis Method: EPA 8260C/5030C
QC Batch Method: EPA 8260C/5030C Analysis Description: 8260 MSV
Associated Lab Samples: 7096019001, 7096019002, 7096019003, 7096019004

METHOD BLANK: 575311 Matrix: Water
Associated Lab Samples: 7096019001, 7096019002, 7096019003, 7096019004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<1.0	1.0	07/08/19 13:34	
1,1,1-Trichloroethane	ug/L	<1.0	1.0	07/08/19 13:34	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	1.0	07/08/19 13:34	
1,1,2-Trichloroethane	ug/L	<1.0	1.0	07/08/19 13:34	
1,1-Dichloroethane	ug/L	<1.0	1.0	07/08/19 13:34	
1,1-Dichloroethene	ug/L	<1.0	1.0	07/08/19 13:34	
1,2,3-Trichloropropane	ug/L	<1.0	1.0	07/08/19 13:34	
1,2-Dibromo-3-chloropropane	ug/L	<1.0	1.0	07/08/19 13:34	
1,2-Dibromoethane (EDB)	ug/L	<1.0	1.0	07/08/19 13:34	
1,2-Dichlorobenzene	ug/L	<1.0	1.0	07/08/19 13:34	
1,2-Dichloroethane	ug/L	<1.0	1.0	07/08/19 13:34	
1,2-Dichloropropane	ug/L	<1.0	1.0	07/08/19 13:34	
1,4-Dichlorobenzene	ug/L	<1.0	1.0	07/08/19 13:34	
2-Butanone (MEK)	ug/L	<5.0	5.0	07/08/19 13:34	IL
2-Hexanone	ug/L	<5.0	5.0	07/08/19 13:34	
4-Methyl-2-pentanone (MIBK)	ug/L	<5.0	5.0	07/08/19 13:34	
Acetone	ug/L	<5.0	5.0	07/08/19 13:34	IC
Acrylonitrile	ug/L	<1.0	1.0	07/08/19 13:34	
Benzene	ug/L	<1.0	1.0	07/08/19 13:34	
Bromochloromethane	ug/L	<1.0	1.0	07/08/19 13:34	
Bromodichloromethane	ug/L	<1.0	1.0	07/08/19 13:34	
Bromoform	ug/L	<1.0	1.0	07/08/19 13:34	
Bromomethane	ug/L	<1.0	1.0	07/08/19 13:34	
Carbon disulfide	ug/L	<1.0	1.0	07/08/19 13:34	
Carbon tetrachloride	ug/L	<1.0	1.0	07/08/19 13:34	
Chlorobenzene	ug/L	<1.0	1.0	07/08/19 13:34	
Chloroethane	ug/L	<1.0	1.0	07/08/19 13:34	
Chloroform	ug/L	<1.0	1.0	07/08/19 13:34	
Chloromethane	ug/L	<1.0	1.0	07/08/19 13:34	
cis-1,2-Dichloroethene	ug/L	<1.0	1.0	07/08/19 13:34	
cis-1,3-Dichloropropene	ug/L	<1.0	1.0	07/08/19 13:34	
Dibromochloromethane	ug/L	<1.0	1.0	07/08/19 13:34	
Dibromomethane	ug/L	<1.0	1.0	07/08/19 13:34	
Ethylbenzene	ug/L	<1.0	1.0	07/08/19 13:34	
Iodomethane	ug/L	<1.0	1.0	07/08/19 13:34	
m&p-Xylene	ug/L	<2.0	2.0	07/08/19 13:34	
Methylene Chloride	ug/L	<1.0	1.0	07/08/19 13:34	
o-Xylene	ug/L	<1.0	1.0	07/08/19 13:34	
Styrene	ug/L	<1.0	1.0	07/08/19 13:34	
Tetrachloroethene	ug/L	<1.0	1.0	07/08/19 13:34	
Toluene	ug/L	<1.0	1.0	07/08/19 13:34	

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Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: 1906-12088
Pace Project No.: 7096019

METHOD BLANK: 575311 Matrix: Water
Associated Lab Samples: 7096019001, 7096019002, 7096019003, 7096019004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,2-Dichloroethene	ug/L	<1.0	1.0	07/08/19 13:34	
trans-1,3-Dichloropropene	ug/L	<1.0	1.0	07/08/19 13:34	
trans-1,4-Dichloro-2-butene	ug/L	<1.0	1.0	07/08/19 13:34	
Trichloroethene	ug/L	<1.0	1.0	07/08/19 13:34	
Trichlorofluoromethane	ug/L	<1.0	1.0	07/08/19 13:34	
Vinyl acetate	ug/L	<1.0	1.0	07/08/19 13:34	
Vinyl chloride	ug/L	<1.0	1.0	07/08/19 13:34	
1,2-Dichloroethane-d4 (S)	%	107	68-153	07/08/19 13:34	
4-Bromofluorobenzene (S)	%	98	79-124	07/08/19 13:34	
Toluene-d8 (S)	%	99	69-124	07/08/19 13:34	

LABORATORY CONTROL SAMPLE: 575312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	44.2	88	74-113	
1,1,1-Trichloroethane	ug/L	50	49.0	98	65-118	
1,1,2,2-Tetrachloroethane	ug/L	50	53.2	106	74-121	
1,1,2-Trichloroethane	ug/L	50	50.5	101	80-117	
1,1-Dichloroethane	ug/L	50	53.2	106	83-151	
1,1-Dichloroethene	ug/L	50	51.8	104	45-146	
1,2,3-Trichloropropane	ug/L	50	46.5	93	71-123	
1,2-Dibromo-3-chloropropane	ug/L	50	50.7	101	74-119	
1,2-Dibromoethane (EDB)	ug/L	50	48.2	96	83-115	
1,2-Dichlorobenzene	ug/L	50	49.6	99	74-113	
1,2-Dichloroethane	ug/L	50	55.8	112	74-129	
1,2-Dichloropropane	ug/L	50	50.4	101	75-117	
1,4-Dichlorobenzene	ug/L	50	49.2	98	71-113	
2-Butanone (MEK)	ug/L	50	50.9	102	44-162	IL
2-Hexanone	ug/L	50	50.3	101	32-183	
4-Methyl-2-pentanone (MIBK)	ug/L	50	51.0	102	69-132	
Acetone	ug/L	50	56.0	112	23-188	IC
Acrylonitrile	ug/L	50	54.5	109	59-148	
Benzene	ug/L	50	48.9	98	73-119	
Bromochloromethane	ug/L	50	52.5	105	81-116	
Bromodichloromethane	ug/L	50	51.0	102	78-117	
Bromoform	ug/L	50	42.5	85	65-122	
Bromomethane	ug/L	50	54.6	109	52-147	
Carbon disulfide	ug/L	50	48.6	97	41-144	
Carbon tetrachloride	ug/L	50	50.9	102	59-120	
Chlorobenzene	ug/L	50	46.7	93	75-113	
Chloroethane	ug/L	50	52.4	105	49-151	
Chloroform	ug/L	50	54.6	109	72-122	
Chloromethane	ug/L	50	51.9	104	46-144	
cis-1,2-Dichloroethene	ug/L	50	50.6	101	72-121	

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575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: 1906-12088
Pace Project No.: 7096019

LABORATORY CONTROL SAMPLE: 575312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,3-Dichloropropene	ug/L	50	50.3	101	78-116	
Dibromochloromethane	ug/L	50	46.9	94	70-120	
Dibromomethane	ug/L	50	47.6	95	75-125	
Ethylbenzene	ug/L	50	46.0	92	70-113	
Iodomethane	ug/L	50	37.3	75	61-144	
m&p-Xylene	ug/L	100	90.2	90	72-115	
Methylene Chloride	ug/L	50	50.6	101	61-142	
o-Xylene	ug/L	50	44.9	90	73-117	
Styrene	ug/L	50	45.8	92	72-118	
Tetrachloroethene	ug/L	50	45.3	91	60-128	
Toluene	ug/L	50	49.0	98	72-119	
trans-1,2-Dichloroethene	ug/L	50	51.4	103	56-142	
trans-1,3-Dichloropropene	ug/L	50	49.6	99	79-116	
trans-1,4-Dichloro-2-butene	ug/L	50	54.4	109	71-121	
Trichloroethene	ug/L	50	47.5	95	69-117	
Trichlorofluoromethane	ug/L	50	53.5	107	27-173	
Vinyl acetate	ug/L	50	53.2	106	20-158	
Vinyl chloride	ug/L	50	53.6	107	43-143	
1,2-Dichloroethane-d4 (S)	%			107	68-153	
4-Bromofluorobenzene (S)	%			104	79-124	
Toluene-d8 (S)	%			104	69-124	

MATRIX SPIKE SAMPLE: 575676

Parameter	Units	7096019001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<1.0	50	47.4	95	74-113	
1,1,1-Trichloroethane	ug/L	<1.0	50	54.4	109	65-118	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	50	55.3	111	74-121	
1,1,2-Trichloroethane	ug/L	<1.0	50	53.8	108	80-117	
1,1-Dichloroethane	ug/L	<1.0	50	59.0	118	83-151	
1,1-Dichloroethene	ug/L	<1.0	50	56.6	113	45-146	
1,2,3-Trichloropropane	ug/L	<1.0	50	50.5	101	71-123	
1,2-Dibromo-3-chloropropane	ug/L	<1.0	50	52.2	104	74-119	
1,2-Dibromoethane (EDB)	ug/L	<1.0	50	50.6	101	83-115	
1,2-Dichlorobenzene	ug/L	<1.0	50	53.8	108	74-113	
1,2-Dichloroethane	ug/L	<1.0	50	59.3	119	74-129	
1,2-Dichloropropane	ug/L	<1.0	50	55.5	111	75-117	
1,4-Dichlorobenzene	ug/L	<1.0	50	53.1	106	71-113	
2-Butanone (MEK)	ug/L	<5.0	50	51.9	104	44-162	IL
2-Hexanone	ug/L	<5.0	50	50.9	102	32-183	
4-Methyl-2-pentanone (MIBK)	ug/L	<5.0	50	54.7	109	69-132	
Acetone	ug/L	<5.0	50	63.1	121	23-188	IC
Acrylonitrile	ug/L	<1.0	50	57.3	115	59-148	
Benzene	ug/L	<1.0	50	54.0	108	73-119	
Bromochloromethane	ug/L	<1.0	50	55.1	110	81-116	

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REPORT OF LABORATORY ANALYSIS

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575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: 1906-12088
Pace Project No.: 7096019

MATRIX SPIKE SAMPLE: 575676

Parameter	Units	7096019001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromodichloromethane	ug/L	<1.0	50	53.8	108	78-117	
Bromoform	ug/L	<1.0	50	42.3	85	65-122	
Bromomethane	ug/L	<1.0	50	32.3	65	52-147	
Carbon disulfide	ug/L	<1.0	50	51.5	103	41-144	
Carbon tetrachloride	ug/L	<1.0	50	55.5	111	59-120	
Chlorobenzene	ug/L	<1.0	50	51.3	103	75-113	
Chloroethane	ug/L	<1.0	50	56.1	112	49-151	
Chloroform	ug/L	<1.0	50	59.8	120	72-122	
Chloromethane	ug/L	10.5	50	51.9	83	46-144	
cis-1,2-Dichloroethene	ug/L	<1.0	50	55.5	111	72-121	
cis-1,3-Dichloropropene	ug/L	<1.0	50	54.3	109	78-116	
Dibromochloromethane	ug/L	<1.0	50	46.7	93	70-120	
Dibromomethane	ug/L	<1.0	50	50.9	102	75-125	
Ethylbenzene	ug/L	<1.0	50	51.4	103	70-113	
Iodomethane	ug/L	<1.0	50	64.4	129	61-144	
m&p-Xylene	ug/L	<2.0	100	102	102	72-115	
Methylene Chloride	ug/L	<1.0	50	55.4	111	61-142	
o-Xylene	ug/L	<1.0	50	51.3	103	73-117	
Styrene	ug/L	<1.0	50	50.9	102	72-118	
Tetrachloroethene	ug/L	<1.0	50	48.5	97	60-128	
Toluene	ug/L	<1.0	50	54.5	109	72-119	
trans-1,2-Dichloroethene	ug/L	<1.0	50	56.6	113	56-142	
trans-1,3-Dichloropropene	ug/L	<1.0	50	52.8	106	79-116	
trans-1,4-Dichloro-2-butene	ug/L	<1.0	50	48.4	97	71-121	
Trichloroethene	ug/L	<1.0	50	52.0	104	69-117	
Trichlorofluoromethane	ug/L	<1.0	50	56.7	113	27-173	
Vinyl acetate	ug/L	<1.0	50	54.3	109	20-158	
Vinyl chloride	ug/L	<1.0	50	53.1	106	43-143	
1,2-Dichloroethane-d4 (S)	%				107	68-153	
4-Bromofluorobenzene (S)	%				98	79-124	
Toluene-d8 (S)	%				99	69-124	

SAMPLE DUPLICATE: 575680

Parameter	Units	7096019002 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<1.0	<1.0		
1,1,1-Trichloroethane	ug/L	<1.0	<1.0		
1,1,2,2-Tetrachloroethane	ug/L	<1.0	<1.0		
1,1,2-Trichloroethane	ug/L	<1.0	<1.0		
1,1-Dichloroethane	ug/L	<1.0	<1.0		
1,1-Dichloroethene	ug/L	<1.0	<1.0		
1,2,3-Trichloropropane	ug/L	<1.0	<1.0		
1,2-Dibromo-3-chloropropane	ug/L	<1.0	<1.0		
1,2-Dibromoethane (EDB)	ug/L	<1.0	<1.0		
1,2-Dichlorobenzene	ug/L	<1.0	<1.0		

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575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: 1906-12088
Pace Project No.: 7096019

SAMPLE DUPLICATE: 575680

Parameter	Units	7096019002 Result	Dup Result	RPD	Qualifiers
1,2-Dichloroethane	ug/L	<1.0	<1.0		
1,2-Dichloropropane	ug/L	<1.0	<1.0		
1,4-Dichlorobenzene	ug/L	<1.0	<1.0		
2-Butanone (MEK)	ug/L	<5.0	<5.0		IL
2-Hexanone	ug/L	<5.0	<5.0		
4-Methyl-2-pentanone (MIBK)	ug/L	<5.0	<5.0		
Acetone	ug/L	<5.0	5.3		IC
Acrylonitrile	ug/L	<1.0	<1.0		
Benzene	ug/L	<1.0	<1.0		
Bromochloromethane	ug/L	<1.0	<1.0		
Bromodichloromethane	ug/L	<1.0	<1.0		
Bromoform	ug/L	<1.0	<1.0		
Bromomethane	ug/L	<1.0	<1.0		
Carbon disulfide	ug/L	<1.0	<1.0		
Carbon tetrachloride	ug/L	<1.0	<1.0		
Chlorobenzene	ug/L	<1.0	<1.0		
Chloroethane	ug/L	<1.0	<1.0		
Chloroform	ug/L	<1.0	<1.0		
Chloromethane	ug/L	5.2	8.6	50	D6
cis-1,2-Dichloroethene	ug/L	<1.0	<1.0		
cis-1,3-Dichloropropene	ug/L	<1.0	<1.0		
Dibromochloromethane	ug/L	<1.0	<1.0		
Dibromomethane	ug/L	<1.0	<1.0		
Ethylbenzene	ug/L	<1.0	<1.0		
Iodomethane	ug/L	<1.0	<1.0		
m&p-Xylene	ug/L	<2.0	<2.0		
Methylene Chloride	ug/L	<1.0	<1.0		
o-Xylene	ug/L	<1.0	<1.0		
Styrene	ug/L	<1.0	<1.0		
Tetrachloroethene	ug/L	<1.0	<1.0		
Toluene	ug/L	<1.0	<1.0		
trans-1,2-Dichloroethene	ug/L	<1.0	<1.0		
trans-1,3-Dichloropropene	ug/L	<1.0	<1.0		
trans-1,4-Dichloro-2-butene	ug/L	<1.0	<1.0		
Trichloroethene	ug/L	<1.0	<1.0		
Trichlorofluoromethane	ug/L	<1.0	<1.0		
Vinyl acetate	ug/L	<1.0	<1.0		
Vinyl chloride	ug/L	<1.0	<1.0		
1,2-Dichloroethane-d4 (S)	%	115	107		
4-Bromofluorobenzene (S)	%	105	98		
Toluene-d8 (S)	%	98	98		

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575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALIFIERS

Project: 1906-12088
Pace Project No.: 7096019

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
IC	The initial calibration for this compound was outside of method control limits. The result is estimated.
IL	This analyte exceeded secondary source verification criteria low for the initial calibration. The reported results should be considered an estimated value.

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575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1906-12088
Pace Project No.: 7096019

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
7096019001	1906-12088-001	EPA 8260C/5030C	120861		
7096019002	1906-12088-002	EPA 8260C/5030C	120861		
7096019003	1906-12088-003	EPA 8260C/5030C	120861		
7096019004	1906-12088-004	EPA 8260C/5030C	120861		

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CHAIN OF CUSTODY RECORD

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888-3007
Tel: 800-937-2580
Fax: 401-738-1970

131 Coolidge St, Suite 105
Hudson, MA 01749-1331
Tel: 800-937-2580
Fax: 978-568-0078

Date Collected	Time Collected	Lab ID	Sample Identification	Grab or Composite	# of Containers & Type C	Preservation Code P	Matrix Code M		Volatile Organic Compounds - 8260
6/26/2019		1906-12088-001	MW-1	G	2V	H	GW		X
6/26/2019		1906-12088-002	MW-6	G	2V	H	GW		X
6/26/2019		1906-12088-003	Surface Runoff ED	G	2V	H	GW		X
6/26/2019		1906-12088-004	Surface Runoff WD	G	2V	H	GW		X

WO#:7096019

7096019

Send Report and Invoice to:	
Company Name:	R.I. Analytical Laboratories, Inc.
Address:	41 Illinois Avenue
City/State/Zip:	Warwick, RI 02888
Contact Person:	Kristen Phelan
Email:	kphelan@rianalytical.com; datareporting@rianalytical.com
Telephone:	401-737-8500 x 116

Subcontractor Information:	
Company Name:	Pace Analytical Services, Inc.
Address:	575 Broadhollow Road
City/State/Zip:	Melville, NY 11747
Contact Person:	Sophia Sparkes
Email:	Sophia.Sparkes@pacelabs.com
Telephone:	631-694-3040

Relinquished By	Date	Time	Received by	Date	Time
[illegible]	~~7-1-19~~ 7-1-19	1320	[illegible]	7-2-19	10:30

Turn Around Time	
X	10 day TAT
	Rush ____ (Days)

Project Comments

If MCL is exceeded, notify Kristen Mayo (800-937-2580 x109) and Ruben Parrilla (800-937-2580 x160/cell #(617) 893-0257)

PO # : 493

Temperature Upon Receipt 5.0 °C

Date Shipped:	7/1/2019
X	Fedex-rec. lab
X	Overnight
X	Shipped on Ice
WO #:	1906-12088

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH_4Cl, H=HCl, M=MeOH, N=HNO_3, NP=None, S=H_2SO_4, SB=$NaHSO_4$, SH=NaOH, T=$Na_2S_2O_3$, Z=ZnOAc

Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, O=_____

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Acetone	<10	10	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Acrylonitrile	<10	10	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
2-Butanone(MEK)	<10	10	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
4-Methyl-2-pentanone(MIBK)	<10	10	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
2-Hexanone	<10	10	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
trans-1,4-Dichloro-2-butene	<10	10	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
cis-1,3-Dichloropropene	<0.4	0.4	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
trans-1,3-Dichloropropylene	<0.4	0.4	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Vinyl Acetate	<50	50	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Surrogates			RANGE				
Dibromofluoromethane	107		86-118%	SW-846 8260C	5/10/2019	15:30	RBR
Toluene-d8	99		88-110%	SW-846 8260C	5/10/2019	15:30	RBR
4-Bromofluorobenzene	98		86-115%	SW-846 8260C	5/10/2019	15:30	RBR
1,2 Dichloroethane-d4	107		80-120%	SW-846 8260C	5/10/2019	15:30	RBR
Volatile Organic Compounds							
Benzene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Bromochloromethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Bromodichloromethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Bromoform	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Bromomethane	<5	5	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Carbon Tetrachloride	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Chlorobenzene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Chloroethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Chloroform	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Chloromethane	1.9	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Dibromochloromethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,2-Dibromo-3-Chloropropane	<2	2	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,2-Dibromoethane(EDB)	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Dibromomethane	<2	2	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,2-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,4-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,1-Dichloroethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,2-Dichloroethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,1-Dichloroethene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
cis-1,2-Dichloroethene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
trans-1,2-Dichloroethylene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,2-Dichloropropane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Ethylbenzene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Methylene Chloride	<5	5	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Styrene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,1,1,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,1,2,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Tetrachloroethene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Toluene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,1,1-Trichloroethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,1,2-Trichloroethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Trichloroethene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Trichlorofluoromethane	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
1,2,3-Trichloropropane	<2	2	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Vinyl Chloride	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
o-Xylene	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
m,p-Xylene	<2	2	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Carbon Disulfide	<1	1	ug/l	SW-846 8260C	5/10/2019	15:30	RBR
Iodomethane	<10	10	ug/l	SW-846 8260C	5/10/2019	15:30	RBR

Pace Analytical

Sample Condition Upon Receipt

WO#: 7096019

PM: STS Due Date: 07/10/19

CLIENT: RIAL

Client Name: RIAL

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace ☐ Other

Tracking #: 7806 0948 9978

Custody Seal on Cooler/Box Present: ☐ Yes ☒ No Seals intact: ☐ Yes ☐ No Temperature Blank Present: ☐ Yes ☒

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ Ziploc ☐ None ☐ Other Type of Ice: Wet Blue None

Thermometer Used: TH09 Correction Factor: +0.2 ☐ Samples on ice, cooling process has begu

Cooler Temperature (°C): 5.0 Cooler Temperature Corrected (°C): 5.2 Date/Time 5035A kits placed in freezer

Temp should be above freezing to 6.0°C

USDA Regulated Soil (☒ N/A, water sample) Date and Initials of person examining contents: JK 7/12

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO Did samples originate from a foreign source (inter including Hawaii and Puerto Rico)? ☐ Yes ☐ N

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present:	☒ Yes	☐ No		1.
Chain of Custody Filled Out:	☒ Yes	☐ No		2.
Chain of Custody Relinquished:	☒ Yes	☐ No		3.
Sampler Name & Signature on COC:	☒ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time:	☒ Yes	☐ No		5.
Short Hold Time Analysis (<72hr):	☐ Yes	☒ No		6.
Rush Turn Around Time Requested:	☐ Yes	☒ No		7.
Sufficient Volume: (Triple volume provided for MS/MSD)	☒ Yes	☐ No		8.
Correct Containers Used:	☒ Yes	☐ No		9.
-Pace Containers Used:	☒ Yes	☐ No		
Containers Intact:	☒ Yes	☐ No		10.
Filtered volume received for Dissolved tests	☐ Yes	☐ No	☒ N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	☒ Yes	☐ No		12.
-Includes date/time/ID/Analysis Matrix SL WT OIL				
All containers needing preservation have been checked	☐ Yes	☐ No	☒ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
pH paper Lot #				Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl, NaOH>9 Sulfide, NAOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis	☐ Yes	☐ No	☒ N/A	Initial when completed: / Lot # of added preservative: / Date/Time preservative a
Samples checked for dechlorination*	☐ Yes	☐ No	☒ N/A	14.
KI starch test strips Lot #				
Residual chlorine strips Lot #				Positive for Res. Chlorine? Y N
Headspace in VOA Vials (>6mm):	☐ Yes	☒ No	☐ N/A	15.
Trip Blank Present:	☐ Yes	☒ No	☐ N/A	16.
Trip Blank Custody Seals Present	☐ Yes	☐ No	☒ N/A	
Pace Trip Blank Lot # (if applicable):				

Field Data Required? Y / N

Client Notification/ Resolution: Date/Time:

Person Contacted:

Comments/ Resolution:

* PM (Project Manager) review is documented electronically in LIMS.

CHAIN OF CUSTODY RECORD

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Tel: 800-937-2580
Fax: 401-738-1970

131 Coolidge St, Bldg. 2
Hudson, MA 01749
Tel: 888-228-3334
Fax: 978-568-0078

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type T	Preservation Code P	Matrix Code M	VOCS	Metals	TSS	TS
6/26/19		MW-1	G	2P-2V	Np-N-H	GW	X	X		
6/26/19		MW-6	G	2P-2V	Np-N-H	GW	X	X		
6/26/19		Surface Runoff ED	G	2P-2V	Np-N-H	GW	X	X	X	X
6/26/19		Surface Runoff WD	G	2P-2V	Np-N-H	GW	X	X	X	X

Client Information

Company Name: Hoffman Engineering, Inc.
Address: 640 Ten Rod
City / State / Zip: North Kingstown, RI 02852
Telephone: 401-294-9032 Fax
Contact Person: Bob Hoffman

Project Information

Project Name: Phase II Hopkinton Landfill
P.O. Number: Project Number:
Report To: Bob Hoffman Phone: Fax:
Sampled by: Anthony Gomez
Quote No: Email address:

Relinquished By	Date	Time	Received By	Date	Time
[signature]	6/28/19	11:18	[signature]	6/28/19	11:18

Turn Around Time

X Normal — EMAIL Report
5 Business days. Possible surcharge
Rush _____ (business days)

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

See Westerly Landfill Contract for Analytes. All metal subdrinking water detection limit. Samples collected Low Flow Report QA/QC

Lab Use Only

Sample Pick Up Only
RIAL sampled; attach field hours
Y Shipped on ice
Workorder No 1906-12088

1.1

Container Types: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile
Preservation Codes: NP=None, N=HNO_3, H=HCl, S=H_2SO_4, SH=NaOH, SB=$NaHSO_4$, M=MeOH, T=$Na_2S_2O_3$, Z=ZnOAc, I=Ice
Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, Sl=Sludge, A=Air, B=Bulk/Solid, O=_____

R.I. ANALYTICAL
Specialists in Environmental Services

LABORATORY REPORT

Hoffman Engineering, Inc.
Attn: Robert Hoffman
640 Ten Rod Road
North Kingstown, RI 02852

Date Received: 9/3/2019
Date Reported: 9/12/2019
P.O. Number

Work Order #: 1909-16582
Project Name: HOPKINTON LANDFILL

Enclosed are the analytical results and Chain of Custody for your project referenced above. The sample(s) were analyzed by our Warwick, RI laboratory unless noted otherwise. When applicable, indication of sample analysis at our Hudson, MA laboratory and/or subcontracted results are noted and subcontracted reports are enclosed in their entirety.

All samples were analyzed within the established guidelines of US EPA approved methods with all requirements met, unless otherwise noted at the end of a given sample's analytical results or in a case narrative.

The Detection Limit is defined as the lowest level that can be reliably achieved during routine laboratory conditions.

These results only pertain to the samples submitted for this Work Order # and this report shall not be reproduced except in its entirety.

We certify that the following results are true and accurate to the best of our knowledge. If you have questions or need further assistance, please contact our Customer Service Department.

Approved by:

Dawne E. Smart
Data Reporting Manager

Laboratory Certification Numbers (as applicable to sample's origin state):
Warwick RI * RI LAI00033, MA M-RI015, CT PH-0508 Hudson MA * M-MA1117, RI LAO00319

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1909-16582

Project Name: HOPKINTON LANDFILL

Sample Number: 001
Sample Description: MW-5
Sample Type : GRAB
Sample Date / Time : 9/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Total Metals							
Antimony	<0.002	0.002	mg/l	SW-846 6020A	9/6/2019	16:38	AJD
Arsenic	<0.001	0.001	mg/l	SW-846 6020A	9/6/2019	16:38	AJD
Cadmium	<0.001	0.001	mg/l	SW-846 6020A	9/6/2019	16:38	AJD
Lead	<0.001	0.001	mg/l	SW-846 6020A	9/6/2019	16:38	AJD
Selenium	<0.002	0.002	mg/l	SW-846 6020A	9/6/2019	16:38	AJD
Thallium	<0.001	0.001	mg/l	SW-846 6020A	9/6/2019	16:38	AJD
Total Metals							
Barium	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:11	JAM
Beryllium	<0.005	0.005	mg/l	SW-846 6010C	9/11/2019	15:11	JAM
Chromium	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:11	JAM
Cobalt	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:11	JAM
Copper	<0.010	0.010	mg/l	SW-846 6010C	9/11/2019	15:11	JAM
Nickel	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:11	JAM
Silver	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:11	JAM
Vanadium	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:11	JAM
Zinc	<0.10	0.10	mg/l	SW-846 6010C	9/11/2019	15:11	JAM
ICPMS Digestion (Total)				SW-846 3020A	9/5/2019	14:05	RB
ICP Digestion				SW-846 3010A	9/11/2019	14:27	RB
Volatile Organic Compounds							
Benzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Bromobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Bromochloromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Bromodichloromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Bromoform	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Bromomethane	<5	5	ug/l	SW-846 8260C	9/11/2019	17:31	KF
n-Butylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Sec-butylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
tert-Butylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Carbon Tetrachloride	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Chlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Chloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Chloroform	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Chloromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
2-Chlorotoluene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
4-Chlorotoluene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Dibromochloromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,2-Dibromo-3-Chloropropane	<2	2	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,2-Dibromoethane(EDB)	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Dibromomethane	<2	2	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,2-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1909-16582

Project Name: HOPKINTON LANDFILL

Sample Number: 001
Sample Description: MW-5
Sample Type : GRAB
Sample Date / Time : 9/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
1,3-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,4-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Dichlorodifluoromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,1-Dichloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,2-Dichloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,1-Dichloroethene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
cis-1,2-Dichloroethene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
trans-1,2-Dichloroethylene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,2-Dichloropropane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,3-Dichloropropane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
2,2-Dichloropropane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,1-Dichloropropene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Ethylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Hexachlorobutadiene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Isopropylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
p-Isopropyltoluene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Methylene Chloride	<5	5	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Naphthalene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
n-Propylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Styrene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,1,1,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,1,2,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Tetrachloroethene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Toluene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,2,3-Trichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,2,4-Trichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,1,1-Trichloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,1,2-Trichloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Trichloroethene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Trichlorofluoromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,2,3-Trichloropropane	<2	2	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,2,4-Trimethylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
1,3,5-Trimethylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Vinyl Chloride	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
o-Xylene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:31	KF
m,p-Xylene	<2	2	ug/l	SW-846 8260C	9/11/2019	17:31	KF
MTBE	<2	2	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Acetone	<10	10	ug/l	SW-846 8260C	9/11/2019	17:31	KF
Surrogates			RANGE				
Dibromofluoromethane	103		86-118%	SW-846 8260C	9/11/2019	17:31	KF
Toluene-d8	99		88-110%	SW-846 8260C	9/11/2019	17:31	KF
4-Bromofluorobenzene	93		86-115%	SW-846 8260C	9/11/2019	17:31	KF
1,2 Dichloroethane-d4	109		80-120%	SW-846 8260C	9/11/2019	17:31	KF

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1909-16582

Project Name: HOPKINTON LANDFILL

Sample Number: 002
Sample Description: MW-7
Sample Type : GRAB
Sample Date / Time : 8/30/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Total Metals							
Antimony	<0.002	0.002	mg/l	SW-846 6020A	9/6/2019	17:06	AJD
Arsenic	<0.001	0.001	mg/l	SW-846 6020A	9/6/2019	17:06	AJD
Cadmium	<0.001	0.001	mg/l	SW-846 6020A	9/6/2019	17:06	AJD
Lead	<0.001	0.001	mg/l	SW-846 6020A	9/6/2019	17:06	AJD
Selenium	<0.002	0.002	mg/l	SW-846 6020A	9/6/2019	17:06	AJD
Thallium	<0.001	0.001	mg/l	SW-846 6020A	9/6/2019	17:06	AJD
Total Metals							
Barium	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:15	JAM
Beryllium	<0.005	0.005	mg/l	SW-846 6010C	9/11/2019	15:15	JAM
Chromium	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:15	JAM
Cobalt	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:15	JAM
Copper	<0.010	0.010	mg/l	SW-846 6010C	9/11/2019	15:15	JAM
Nickel	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:15	JAM
Silver	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:15	JAM
Vanadium	<0.050	0.050	mg/l	SW-846 6010C	9/11/2019	15:15	JAM
Zinc	<0.10	0.10	mg/l	SW-846 6010C	9/11/2019	15:15	JAM
ICPMS Digestion (Total)				SW-846 3020A	9/5/2019	14:05	RB
ICP Digestion				SW-846 3010A	9/11/2019	14:27	RB
Volatile Organic Compounds							
Benzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Bromobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Bromochloromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Bromodichloromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Bromoform	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Bromomethane	<5	5	ug/l	SW-846 8260C	9/11/2019	17:04	KF
n-Butylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Sec-butylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
tert-Butylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Carbon Tetrachloride	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Chlorobenzene	2.1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Chloroethane	3.4	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Chloroform	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Chloromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
2-Chlorotoluene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
4-Chlorotoluene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Dibromochloromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,2-Dibromo-3-Chloropropane	<2	2	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,2-Dibromoethane(EDB)	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Dibromomethane	<2	2	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,2-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF

R.I. Analytical Laboratories, Inc.
Laboratory Report

Hoffman Engineering, Inc.

Work Order #: 1909-16582

Project Name: HOPKINTON LANDFILL

Sample Number: 002
Sample Description: MW-7
Sample Type : GRAB
Sample Date / Time : 8/30/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
1,3-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,4-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Dichlorodifluoromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,1-Dichloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,2-Dichloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,1-Dichloroethene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
cis-1,2-Dichloroethene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
trans-1,2-Dichloroethylene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,2-Dichloropropane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,3-Dichloropropane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
2,2-Dichloropropane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,1-Dichloropropene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Ethylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Hexachlorobutadiene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Isopropylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
p-Isopropyltoluene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Methylene Chloride	<5	5	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Naphthalene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
n-Propylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Styrene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,1,1,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,1,2,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Tetrachloroethene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Toluene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,2,3-Trichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,2,4-Trichlorobenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,1,1-Trichloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,1,2-Trichloroethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Trichloroethene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Trichlorofluoromethane	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,2,3-Trichloropropane	<2	2	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,2,4-Trimethylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
1,3,5-Trimethylbenzene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Vinyl Chloride	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
o-Xylene	<1	1	ug/l	SW-846 8260C	9/11/2019	17:04	KF
m,p-Xylene	<2	2	ug/l	SW-846 8260C	9/11/2019	17:04	KF
MTBE	<2	2	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Acetone	<10	10	ug/l	SW-846 8260C	9/11/2019	17:04	KF
Surrogates			RANGE				
Dibromofluoromethane	106		86-118%	SW-846 8260C	9/11/2019	17:04	KF
Toluene-d8	100		88-110%	SW-846 8260C	9/11/2019	17:04	KF
4-Bromofluorobenzene	94		86-115%	SW-846 8260C	9/11/2019	17:04	KF
1,2 Dichloroethane-d4	102		80-120%	SW-846 8260C	9/11/2019	17:04	KF

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Hoffman Engineering, Inc.

Work Order #: 1909-16582

Project Name: HOPKINTON LANDFILL

R.I. Analytical Laboratories, Inc.
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Hoffman Engineering, Inc.

Work Order #: 1909-16582

Project Name: HOPKINTON LANDFILL

Quality Control Sample Report

-Method Blanks-

Parameter	Units	Results	Date Analyzed
Method 8260B			
Benzene	ug/l	<1	9/11/2019
Bromobenzene	ug/l	<1	9/11/2019
Bromochloromethane	ug/l	<1	9/11/2019
Bromodichloromethane	ug/l	<1	9/11/2019
Bromoform	ug/l	<1	9/11/2019
Bromomethane	ug/l	<5	9/11/2019
n-Butylbenzene	ug/l	<1	9/11/2019
Sec-butylbenzene	ug/l	<1	9/11/2019
tert-Butylbenzene	ug/l	<1	9/11/2019
Carbon Tetrachloride	ug/l	<1	9/11/2019
Chlorobenzene	ug/l	<1	9/11/2019
Chloroethane	ug/l	<1	9/11/2019
Chloroform	ug/l	<1	9/11/2019
Chloromethane	ug/l	<1	9/11/2019
2-Chlorotoluene	ug/l	<1	9/11/2019
4-Chlorotoluene	ug/l	<1	9/11/2019
Dibromochloromethane	ug/l	<1	9/11/2019
1,2-Dibromo-3-Chloropropane	ug/l	<2	9/11/2019
1,2-Dibromoethane(EDB)	ug/l	<1	9/11/2019
Dibromomethane	ug/l	<2	9/11/2019
1,2-Dichlorobenzene	ug/l	<1	9/11/2019
1,3-Dichlorobenzene	ug/l	<1	9/11/2019
1,4-Dichlorobenzene	ug/l	<1	9/11/2019
Dichlorodifluoromethane	ug/l	<1	9/11/2019
1,1-Dichloroethane	ug/l	<1	9/11/2019
1,2-Dichloroethane	ug/l	<1	9/11/2019
1,1-Dichloroethene	ug/l	<1	9/11/2019
cis-1,2-Dichloroethene	ug/l	<1	9/11/2019
trans-1,2-Dichloroethylene	ug/l	<1	9/11/2019
1,2-Dichloropropane	ug/l	<1	9/11/2019
1,3-Dichloropropane	ug/l	<1	9/11/2019
2,2-Dichloropropane	ug/l	<1	9/11/2019
1,1-Dichloropropene	ug/l	<1	9/11/2019
Ethylbenzene	ug/l	<1	9/11/2019
Hexachlorobutadiene	ug/l	<1	9/11/2019
Isopropylbenzene	ug/l	<1	9/11/2019
p-Isopropyltoluene	ug/l	<1	9/11/2019
Methylene Chloride	ug/l	<5	9/11/2019
Naphthalene	ug/l	<1	9/11/2019
n-Propylbenzene	ug/l	<1	9/11/2019
Styrene	ug/l	<1	9/11/2019
1,1,1,2-Tetrachloroethane	ug/l	<1	9/11/2019

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Project Name: HOPKINTON LANDFILL

1,1,2,2-Tetrachloroethane	ug/l	<1	9/11/2019
Tetrachloroethene	ug/l	<1	9/11/2019
Toluene	ug/l	<1	9/11/2019
1,2,3-Trichlorobenzene	ug/l	<1	9/11/2019
1,2,4-Trichlorobenzene	ug/l	<1	9/11/2019
1,1,1-Trichloroethane	ug/l	<1	9/11/2019
1,1,2-Trichloroethane	ug/l	<1	9/11/2019
Trichloroethene	ug/l	<1	9/11/2019
Trichlorofluoromethane	ug/l	<1	9/11/2019
1,2,3-Trichloropropane	ug/l	<2	9/11/2019
1,2,4-Trimethylbenzene	ug/l	<1	9/11/2019
1,3,5-Trimethylbenzene	ug/l	<1	9/11/2019
Vinyl Chloride	ug/l	<1	9/11/2019
o-Xylene	ug/l	<1	9/11/2019
m,p-Xylene	ug/l	<2	9/11/2019
MTBE	ug/l	<2	9/11/2019
Acetone	ug/l	<10	9/11/2019
Surrogates	RANGE		9/11/2019
Dibromofluoromethane	86-118%	105	9/11/2019
Toluene-d8	88-110%	100	9/11/2019
4-Bromofluorobenzene	86-115%	94	9/11/2019
1,2 Dichloroethane-d4	80-120%	107	9/11/2019
Metals			
Barium	mg/l	<0.050	9/11/2019
Beryllium	mg/l	<0.005	9/11/2019
Chromium	mg/l	<0.050	9/11/2019
Cobalt	mg/l	<0.050	9/11/2019
Copper	mg/l	<0.010	9/11/2019
Nickel	mg/l	<0.050	9/11/2019
Silver	mg/l	<0.050	9/11/2019
Vanadium	mg/l	<0.050	9/11/2019
Zinc	mg/l	<0.10	9/11/2019
Metals by ICP MassSpec			
Antimony	mg/l	<0.002	9/6/2019
Arsenic	mg/l	<0.001	9/6/2019
Cadmium	mg/l	<0.001	9/6/2019
Lead	mg/l	<0.001	9/6/2019
Selenium	mg/l	<0.002	9/6/2019
Thallium	mg/l	<0.001	9/6/2019

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Project Name: HOPKINTON LANDFILL

-Laboratory Control Standard-

Parameter	Units	Spike Conc.	Detected Conc.	% Rec.	Date Analyzed
Method 8260B					
Benzene	ug/l	50	52	104	9/11/2019
Bromobenzene	ug/l	50	48	96	9/11/2019
Bromochloromethane	ug/l	50	50	100	9/11/2019
Bromodichloromethane	ug/l	50	48	96	9/11/2019
Bromoform	ug/l	50	53	106	9/11/2019
Bromomethane	ug/l	50	56	112	9/11/2019
n-Butylbenzene	ug/l	50	51	102	9/11/2019
Sec-butylbenzene	ug/l	50	54	108	9/11/2019
tert-Butylbenzene	ug/l	50	56	112	9/11/2019
Carbon Tetrachloride	ug/l	50	54	108	9/11/2019
Chlorobenzene	ug/l	50	52	104	9/11/2019
Chloroethane	ug/l	50	54	108	9/11/2019
Chloroform	ug/l	50	49	98	9/11/2019
Chloromethane	ug/l	50	48	96	9/11/2019
2-Chlorotoluene	ug/l	50	53	106	9/11/2019
4-Chlorotoluene	ug/l	50	51	102	9/11/2019
Dibromochloromethane	ug/l	50	51	102	9/11/2019
1,2-Dibromo-3-Chloropropane	ug/l	50	35	70	9/11/2019
1,2-Dibromoethane(EDB)	ug/l	50	50	100	9/11/2019
Dibromomethane	ug/l	50	50	100	9/11/2019
1,2-Dichlorobenzene	ug/l	50	51	102	9/11/2019
1,3-Dichlorobenzene	ug/l	50	53	106	9/11/2019
1,4-Dichlorobenzene	ug/l	50	54	108	9/11/2019
Dichlorodifluoromethane	ug/l	50	48	96	9/11/2019
1,1-Dichloroethane	ug/l	50	54	108	9/11/2019
1,2-Dichloroethane	ug/l	50	50	100	9/11/2019
1,1-Dichloroethene	ug/l	50	49	98	9/11/2019
cis-1,2-Dichloroethene	ug/l	50	51	102	9/11/2019
trans-1,2-Dichloroethylene	ug/l	50	56	112	9/11/2019
1,2-Dichloropropane	ug/l	50	51	102	9/11/2019
1,3-Dichloropropane	ug/l	50	49	98	9/11/2019
2,2-Dichloropropane	ug/l	50	47	94	9/11/2019
1,1-Dichloropropene	ug/l	50	54	108	9/11/2019
Ethylbenzene	ug/l	50	53	106	9/11/2019
Hexachlorobutadiene	ug/l	50	60	120	9/11/2019
Isopropylbenzene	ug/l	50	54	108	9/11/2019
p-Isopropyltoluene	ug/l	50	54	108	9/11/2019
Methylene Chloride	ug/l	50	50	100	9/11/2019
Naphthalene	ug/l	50	50	100	9/11/2019
n-Propylbenzene	ug/l	50	53	106	9/11/2019
Styrene	ug/l	50	53	106	9/11/2019
1,1,1,2-Tetrachloroethane	ug/l	50	55	110	9/11/2019
1,1,2,2-Tetrachloroethane	ug/l	50	53	106	9/11/2019
Tetrachloroethene	ug/l	50	56	112	9/11/2019
Toluene	ug/l	50	51	102	9/11/2019

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1,2,3-Trichlorobenzene	ug/l	50	54	108	9/11/2019
1,2,4-Trichlorobenzene	ug/l	50	55	110	9/11/2019
1,1,1-Trichloroethane	ug/l	50	50	100	9/11/2019
1,1,2-Trichloroethane	ug/l	50	45	90	9/11/2019
Trichloroethene	ug/l	50	48	96	9/11/2019
Trichlorofluoromethane	ug/l	50	55	110	9/11/2019
1,2,3-Trichloropropane	ug/l	50	48	96	9/11/2019
1,2,4-Trimethylbenzene	ug/l	50	52	104	9/11/2019
1,3,5-Trimethylbenzene	ug/l	50	52	104	9/11/2019
Vinyl Chloride	ug/l	50	58	116	9/11/2019
o-Xylene	ug/l	50	55	110	9/11/2019
m,p-Xylene	ug/l	100	110	110	9/11/2019
MTBE	ug/l	50	56	112	9/11/2019
Acetone	ug/l	500	320	64	9/11/2019
Surrogates	RANGE				9/11/2019
Dibromofluoromethane	86-118%		104		9/11/2019
Toluene-d8	88-110%		100		9/11/2019
4-Bromofluorobenzene	86-115%		96		9/11/2019
1,2 Dichloroethane-d4	80-120%		102		9/11/2019
Benzene	ug/l	50	52	104	9/11/2019
Bromobenzene	ug/l	50	47	94	9/11/2019
Bromochloromethane	ug/l	50	48	96	9/11/2019
Bromodichloromethane	ug/l	50	48	96	9/11/2019
Bromoform	ug/l	50	53	106	9/11/2019
Bromomethane	ug/l	50	55	110	9/11/2019
n-Butylbenzene	ug/l	50	52	104	9/11/2019
Sec-butylbenzene	ug/l	50	53	106	9/11/2019
tert-Butylbenzene	ug/l	50	54	108	9/11/2019
Carbon Tetrachloride	ug/l	50	53	106	9/11/2019
Chlorobenzene	ug/l	50	52	104	9/11/2019
Chloroethane	ug/l	50	51	102	9/11/2019
Chloroform	ug/l	50	49	98	9/11/2019
Chloromethane	ug/l	50	46	92	9/11/2019
2-Chlorotoluene	ug/l	50	52	104	9/11/2019
4-Chlorotoluene	ug/l	50	50	100	9/11/2019
Dibromochloromethane	ug/l	50	51	102	9/11/2019
1,2-Dibromo-3-Chloropropane	ug/l	50	34	68	9/11/2019
1,2-Dibromoethane(EDB)	ug/l	50	49	98	9/11/2019
Dibromomethane	ug/l	50	50	100	9/11/2019
1,2-Dichlorobenzene	ug/l	50	52	104	9/11/2019
1,3-Dichlorobenzene	ug/l	50	52	104	9/11/2019
1,4-Dichlorobenzene	ug/l	50	53	106	9/11/2019
Dichlorodifluoromethane	ug/l	50	47	94	9/11/2019
1,1-Dichloroethane	ug/l	50	53	106	9/11/2019
1,2-Dichloroethane	ug/l	50	49	98	9/11/2019
1,1-Dichloroethene	ug/l	50	50	100	9/11/2019
cis-1,2-Dichloroethene	ug/l	50	51	102	9/11/2019
trans-1,2-Dichloroethylene	ug/l	50	55	110	9/11/2019
1,2-Dichloropropane	ug/l	50	50	100	9/11/2019
1,3-Dichloropropane	ug/l	50	48	96	9/11/2019

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2,2-Dichloropropane	ug/l	50	46	92	9/11/2019
1,1-Dichloropropene	ug/l	50	54	108	9/11/2019
Ethylbenzene	ug/l	50	53	106	9/11/2019
Hexachlorobutadiene	ug/l	50	59	118	9/11/2019
Isopropylbenzene	ug/l	50	55	110	9/11/2019
p-Isopropyltoluene	ug/l	50	55	110	9/11/2019
Methylene Chloride	ug/l	50	50	100	9/11/2019
Naphthalene	ug/l	50	49	98	9/11/2019
n-Propylbenzene	ug/l	50	52	104	9/11/2019
Styrene	ug/l	50	52	104	9/11/2019
1,1,1,2-Tetrachloroethane	ug/l	50	53	106	9/11/2019
1,1,2,2-Tetrachloroethane	ug/l	50	52	104	9/11/2019
Tetrachloroethene	ug/l	50	56	112	9/11/2019
Toluene	ug/l	50	51	102	9/11/2019
1,2,3-Trichlorobenzene	ug/l	50	53	106	9/11/2019
1,2,4-Trichlorobenzene	ug/l	50	54	108	9/11/2019
1,1,1-Trichloroethane	ug/l	50	49	98	9/11/2019
1,1,2-Trichloroethane	ug/l	50	46	92	9/11/2019
Trichloroethene	ug/l	50	47	94	9/11/2019
Trichlorofluoromethane	ug/l	50	53	106	9/11/2019
1,2,3-Trichloropropane	ug/l	50	47	94	9/11/2019
1,2,4-Trimethylbenzene	ug/l	50	51	102	9/11/2019
1,3,5-Trimethylbenzene	ug/l	50	51	102	9/11/2019
Vinyl Chloride	ug/l	50	57	114	9/11/2019
o-Xylene	ug/l	50	54	108	9/11/2019
m,p-Xylene	ug/l	100	110	110	9/11/2019
MTBE	ug/l	50	54	108	9/11/2019
Acetone	ug/l	500	270	54	9/11/2019
Surrogates	RANGE				9/11/2019
Dibromofluoromethane	86-118%		102		9/11/2019
Toluene-d8	88-110%		101		9/11/2019
4-Bromofluorobenzene	86-115%		92		9/11/2019
1,2 Dichloroethane-d4	80-120%		101		9/11/2019
Metals					
Barium	mg/l	1.00	0.990	99	9/11/2019
Beryllium	mg/l	1.00	1.04	104	9/11/2019
Chromium	mg/l	1.00	1.02	102	9/11/2019
Cobalt	mg/l	1.00	0.937	94	9/11/2019
Copper	mg/l	1.00	1.02	102	9/11/2019
Nickel	mg/l	1.00	0.991	99	9/11/2019
Silver	mg/l	1.00	0.964	96	9/11/2019
Vanadium	mg/l	1.00	1.07	107	9/11/2019
Zinc	mg/l	1.00	1.01	101	9/11/2019
Barium	mg/l	1.00	0.973	97	9/11/2019
Beryllium	mg/l	1.00	1.06	106	9/11/2019
Chromium	mg/l	1.00	1.04	104	9/11/2019
Cobalt	mg/l	1.00	0.953	95	9/11/2019
Copper	mg/l	1.00	1.04	104	9/11/2019
Nickel	mg/l	1.00	1.00	100	9/11/2019
Silver	mg/l	1.00	0.980	98	9/11/2019

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Vanadium	mg/l	1.00	1.09	109	9/11/2019
Zinc	mg/l	1.00	1.02	102	9/11/2019
Metals by ICP MassSpec					
Antimony	mg/l	0.050	0.057	114	9/6/2019
Arsenic	mg/l	0.050	0.051	102	9/6/2019
Cadmium	mg/l	0.050	0.054	108	9/6/2019
Lead	mg/l	0.050	0.054	108	9/6/2019
Selenium	mg/l	0.050	0.051	102	9/6/2019
Thallium	mg/l	0.050	0.040	80	9/6/2019
Antimony	mg/l	0.050	0.057	114	9/6/2019
Arsenic	mg/l	0.050	0.051	102	9/6/2019
Cadmium	mg/l	0.050	0.054	108	9/6/2019
Lead	mg/l	0.050	0.053	106	9/6/2019
Selenium	mg/l	0.050	0.050	100	9/6/2019
Thallium	mg/l	0.050	0.043	86	9/6/2019

CHAIN OF CUSTODY RECORD

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Tel: 800-937-2580
Fax: 401-738-1970

131 Coolidge St, Bldg. 2
Hudson, MA 01749
Tel: 888-228-3334
Fax: 978-568-0078

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type T	Preservation Code P	Matrix Code M	VOC 8260	Total Metals (15 Solid Waste)
9/3/2019		MW-5	G	1P/2V	N/H CL	GW	X	X
8/30/19		MW-7	G	1P/2V	N/H CL	GW	X	X

Client Information

Company Name:	Hoffman Engineering
Address:	640 Ten Rod Road
City / State / Zip:	North Kingstown, RI 02852
Telephone:	401-294-9032 Fax
Contact Person:	Robert Hoffman

Project Information

Project Name:	Hopkington Landfill		
P.O. Number:		Project Number:	
Report To:	Robert Hoffman	Phone:	Fax:
Sampled by:	Anthony Gomez		
Quote No:		Email address:	Hoffmanengineering@verizon.net

Relinquished By	Date	Time	Received By	Date	Time
[illegible]	9/3/19	1656	[illegible]	9/3/19	1656

Turn Around Time

- Normal — X EMAIL Report
- X 5 Business days. Possible surcharge
- Rush _

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

Coliform results absent or present, Please present to RIDOH.

3.5°C

Lab Use Only

- Sample Pick Up Only
- RIAL sampled; attach field hours
- Y Shipped on ice

Workorder No: 1909-16582

Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, Sl=Sludge, A=Air, B=Bulk/Solid, O=_____